ted a specific radio resource only for small periods of time, no matter whether the user has a small or a large amount of data to send.

In our example in figur 2, the user has a lot of data to send, which is indicated by row 2.1, which is high almost all of the time. As shown by the alternating row 2.2, the user is allocated a specific radio resource only for small periods of time. Later on, when the resource allocation algorithm of the radio network realises that the user has a large amount of data to send, the user is allocated the resource a long period of time. In this case, row 2.3 which shows the actual transmission time, has substantially the same shape as row 1.2, which indicates that the actual sending time is not limited by the ability of the user to produce the data but by the short resource allocation periods. Accordingly, the data throughput is lowered, because the user has to wait for data transmission almost all of the time, when he is not allocated any resources. This is shown in row 2.4. The last row 2.5 again shows the wastage of the radio resources. Here the advantage of this allocation method can be seen. Only a small amount of the allocated radio resources are wasted, because the periods of time, where the user is allocated the radio resources, but does not actually transmit any data, are very small. Hence the available radio resources can be shared with other users.

To find a better radio resource allocation algorithm, for instance an algorithm allowing to find a compromise between data throughput and resource wastage, it is essential to know, how much of the radio resources allocated to a particular user are actually utilized by the user to transmit data.

According to the invention, a utilization factor, which is a measure for the amount of radio resources wasted by a user, is determined. As an example of a radio communication network, figure 3 shows a part of a mobile telephone network with a mobile switching centre (MSC) 3, two basestations 4 and 5, which are connected to the MSC 3 by communication links 6 and 7, and two mobile user terminals 8 and 9, which are connected to the basestations 4 and 5 respectively by radio links 10 and 11.

**Claims**

1. Method for allocating radio resources of a radio communication network to a plurality of users (8, 9), where a user is allocated a certain transmission capacity, characterised in that a utilization factor relating to said transmission capacity is determined and the radio resources are allocated depending on said utilization factor.

2. Method according to claim 1, characterised in that said utilization factor is determined by detecting (18) time intervals in which the user does not exploit the transmission capacity allocated to him.

3. Method according to claim 2, characterised in that those time intervals are detected (18), in which the user does not transmit or receive any data.

4. Method according to claim 3, characterised in that said time intervals are detected by directly monitoring (16.4) a radio interface (10) of the radio communication network and detecting time periods without any data throughput.

5. Method according to claim 3, characterised in that a multilayer protocol stack with a first layer is used to transmit data between a transmitter (8) and a receiver (9) and said time intervals are detected by monitoring (16.5) said first layer directly in the transmitter and/or the receiver.

6. Method according to claim 3, characterised in that, the user is allocated radio resources by allocating a data transmission rate and said time intervals are detected by subtracting a target transmission time for transmitting a certain amount of data with said data transmission rate from an actual transmission time required by the user to transmit said amount of data, where the actual transmission time is measured and the tar-

get transmission time is calculated by dividing said amount of data by said data transmission rate.

7. Method according to one of claims 1 to 6, characterised in that the transmission capacity allocated to the user comprises several transmission channels and the utilization factor is determined separately for each transmission channel.

8. Radio communication network with means for an allocation (21) of radio resources to a plurality of users (8, 9), where a user is allocated a certain transmission capacity, characterised in that the radio network includes means (18, 19) for a determination of a utilization factor relating to said transmission capacity and in that the means (21) for allocating the radio resources are formed in such a way that the radio resources are allocated depending on said utilization factor.

9. Radio communication network according to claim 8, characterised in that the means (18, 19) for the determination of the utilization factor are formed in such a way that time intervals can be detected, in which the user (8, 9) does not exploit the transmission capacity allocated to him.

10. Radio communication network according to claim 8 or 9, characterised in that the means (18, 19) for the determination of the utilization factor are formed in such a way that time intervals can be detected, in which the user does not transmit or receive any data.

11. Radio communication network according to one of claims 8 to 10, where the transmission capacity can be allocated to a user (8, 9) by allocating several transmission channels to the user, characterised in that the means (18, 19) for the determination of the utilization factor are formed in such a way that the utilization factor can be determined separately for each transmission channel.

12. Device (16.1, 16.2, 16.3, 16.4, 16.5) for a radio communication network with means (21) for an allocation of radio resources to a plurality of users (8, 9), where a user is allocated a certain transmission capacity, characterised in that the device includes means (18, 19) for a determination of a utilization factor relating to said transmission capacity.